

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A gas sensor which comprises:

a gas detecting section;

a heater section secured in the gas sensor, the heater section including a heating element sandwiched between two porous layers that define a support which supports at least the heating element;

a reference gas space extending along a longitudinal direction of the gas sensor;
and

an opening section extending through and being completely surrounded by at least one layer of the gas sensor, the opening section extending substantially perpendicular to the reference gas space to provide communication between the reference gas space and the heater section so as to reduce pressure generated between the heating element and the support.

2. (Original) The gas sensor according to claim 1, wherein the opening section is provided so that at least a part of the support is exposed to an external atmosphere.

3. (Original) The gas sensor according to claim 2, wherein the heater section includes:

the heating element;

a lead electrically connected with the heating element; and
the support which supports the heating element and the lead,
wherein the opening section is provided so that at least a part of a section, or
vicinity thereof, of the support which supports the heating element is exposed to an
external atmosphere.

4. (Original) The gas sensor according to claim 1, wherein the heater section
includes:

the heating element;
a lead electrically connected with the heating element; and
the support which supports the heating element and the lead,
wherein the opening section is provided so that at least a part of an interface
between the heating element and the support or an interface between the lead and the
support is exposed to an external atmosphere.

5. (Original) The gas sensor according to claim 1, wherein the gas detecting
section includes:

a solid electrolyte diaphragm; and
at least a pair of electrodes, the one electrode being disposed on one surface of
the diaphragm and the other electrode being disposed on another surface of the
diaphragm.

6. (Original) The gas sensor according to claim 2 wherein the gas detecting
section includes:

a solid electrolyte diaphragm; and

at least a pair of electrodes, the one electrode being disposed on one surface of the diaphragm and the other electrode being disposed on another surface of the diaphragm.

7. (Original) The gas sensor according to claim 3, wherein the gas detecting section includes:

a solid electrolyte diaphragm; and

at least a pair of electrodes, the one electrode being disposed on one surface of the diaphragm and the other electrode being disposed on another surface of the diaphragm.

8. (Original) The gas sensor according to claim 4, wherein the gas detecting section includes:

a solid electrolyte diaphragm; and

at least a pair of electrodes, the one electrode being disposed on one surface of the diaphragm and the other electrode being disposed on another surface of the diaphragm.

9. (Original) The gas sensor according to claim 5, wherein the solid electrolyte diaphragm includes stabilized zirconia.

10. (Original) The gas sensor according to claim 6, wherein the solid electrolyte diaphragm includes stabilized zirconia.

11. (Original) The gas sensor according to claim 7, wherein the solid electrolyte diaphragm includes stabilized zirconia.

12. (Original) The gas sensor according to claim 8, wherein the solid electrolyte diaphragm includes stabilized zirconia.

13. (Original) The gas sensor according to claim 1, which comprises an air inlet space.

14. (Original) The gas sensor according to claim 2, which comprises an air inlet space.

15. (Original) The gas sensor according to claim 3, which comprises an air inlet space.

16. (Original) The gas sensor according to claim 4, which comprises an air inlet space.

17. (Original) The gas sensor according to claim 13, wherein the opening section opens to the air inlet space.

18. (Original) The gas sensor according to claim 14, wherein the opening section opens to the air inlet space.

19. (Original) The gas sensor according to claim 15, wherein the opening section opens to the air inlet space.

20. (Original) The gas sensor according to claim 16, wherein the opening section opens to the air inlet space.

21. (New) The gas sensor according to claim 1, wherein an area of the opening section is 10 mm^2 or less.

22. (New) The gas sensor according to claim 1, wherein a distance, d , from a front end of the gas sensor to the opening section satisfies the following inequality:

$$10\text{mm} \leq d \leq 12\text{mm}.$$